PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Hiroshi YAMAGUCHI

Appln. No.: 09/656,131

Confirmation No.: 9189

Filed: September 6, 2000

Docket No: Q59329

Group Art Unit: 2621

Examiner: Anand S. RAO

For: IMAGE PROCESSING DEVICE, IMAGE PROCESSING METHOD AND RECORDED MEDIUM

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.41, Appellant respectfully submits this Reply Brief in response to the Examiner's Answer dated June 2, 2006. Entry of this Reply Brief is respectfully requested.

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STATUS OF CLAIMS

The status of the claims remains unchanged as set forth in the Appeal Brief filed March 13, 2006.

Claims 1-24 are pending in the present application and stand finally rejected.

Based on the Advisory Action of January 4, 2006 and the Office Action of July 13, 2005, claims 1, 2, 4-7, 11, 13-15, 17-18, 20 and 21 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Edgar (U.S. Patent No. 5,266,805; hereinafter "Edgar").

Claims 16 and 19 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Hiramatsu (U.S. Patent No. 4,933,983; hereinafter "Hiramatsu").

Claim 12 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Edgar in view of Tung (U.S. Patent No. 3,758,193; hereinafter "Tung").

Claim 3 has been objected to.

Claims 8-10 and 22-24 have been allowed.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-2, 4-7, 11, 13-15, 17-18, and 20-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Edgar (U.S. Patent No. 5,266,805).

ARGUMENT

Appellant now responds to certain new points raised by the Examiner in his Answer.

I. Edgar does not disclose the claimed deciding device

In response to Appellant's argument that Edgar does not disclose the claimed deciding device, the Examiner asserts that the interpolation and divide function blocks produce results based on the execution of the function of Fig. 4. Further, the Examiner asserts that a decision tree is used to arrive at an appropriate correction method, citing col. 9, lines 10-20 in support. The Examiner asserts that these blocks are responsible for correction results based on the execution of the disclosed decision tree. Therefore, the Examiner asserts that Edgar discloses a deciding device.

The respective column and lines cited by the Examiner disclose that if a pixel value of a particular infrared pixel under examination is equal to or exceeds a predetermined value, a division process is performed. Edgar further discloses that if a dust record falls below a predetermined threshold, an interpolation function is used. See col. 13, lines 26-30. Because the dust record would provide an indicator of the presence of a defect, the absence of the defect leads to a simple interpolation. In the event the error is present, there is only a single type of correction, which comprises division of a color signal by an infrared value. Hence, there is no selection of a plurality of correction methods. Therefore, Edgar merely discloses performing division or interpolation according to a comparison of a pixel value with a threshold. However, there is no teaching or suggestion of "**a deciding device** for **selecting** a correction method from

among a plurality of types of correction methods for correcting a defect portion, or for deciding a range of application of each of at least two correction methods correcting a defect portion."

Assuming *arguendo*, the Examiner is asserting that the decision tree discloses the claimed deciding device, the decision tree does not **select** a correction method.

II. Edgar does not disclose a deciding device for deciding a range of application of each of at least two correction methods correcting a defect portion

Claim 1 recites "**a deciding device** ...for deciding **a range of application** of each **of at least two** correction methods correcting a defect portion." In response to Appellant's arguments that Edgar does not disclose this aspect of the claim, the Examiner first asserts that Edgar discloses that a fill-in algorithm is used for each of the respective red, green and blue values. Therefore, the Examiner asserts that this discloses a different fill-in algorithm is used for each of the colors. However, Edgar merely discloses the use of a single fill-in algorithm with respect to all of the colors. See for example, col. 9, lines 37-38 and col. 12, lines 26-33. There is no teaching or suggestion of deciding **a range of application** of each **of at least two** correction methods correcting a defect portion. The Examiner's reasoning that a different fill-in algorithm is applied per color is purely speculative and thus cannot support the rejection. In particular, the Examiner's reasoning is clearly a result of impermissible hindsight upon viewing the Applicant's invention. Moreover, there is no teaching or suggestion that a deciding device decides a range of application as claimed.

As a second possible argument, the Examiner further asserts that Edgar would require a separate fill-in algorithm for an infrared value (non-visible wavelength of light) from a fill-in

algorithm for the three visible colors. However, the Examiner's own citation clearly teaches that each of R, G, B and IR are subject to cube root processing. See col. 12, lines 2-5. The log processing treats R, G, B data with IR in the same manner unless no IR error is deemed to occur. Again, assuming *arguendo*, there was a separate fill-in algorithm for an infrared value, there is no teaching or suggestion of a deciding device, let alone a deciding device for deciding **a range of application** of each **of at least two** correction methods correcting a defect portion.

As a third possible argument, the Examiner further asserts that Edgar discloses selecting between a fill-in algorithm and a division operation, both of which are used to adjust pixel values for correction implementation. However, there is no teaching of a deciding device, let alone a deciding device for deciding **a range of application** of each **of at least two** correction methods correcting a defect portion.

In response to Appellant's arguments that the intensity of imperfections used by Edgar does not disclose deciding a range of application of at least two correction methods, the Examiner asserts that intensities are mapped and evaluated according to intensities that establish the degree of imperfections in an image. The Examiner asserts that for each mapped image there is going to be a most intense imperfection and a least intense imperfection. A selected fill-in algorithm would use the intensity of imperfections values to establish a correction range.

Contrary to the Examiner's assertions, col. 6, lines 59-66 of Edgar discloses that imperfections show up as imperfections of equal intensity. Further, there is no teaching or suggestion of **deciding a range of application** of a fill in algorithm for **each of** a red, green **and** blue value, for infrared values **and** the three visible values, or for a fill-in algorithm **and** a

division operation (at least two correction methods as cited by the Examiner). Assuming *arguendo* that the amount of correction differs, the algorithm of correction relates to a single algorithm, not two correction methods as claimed.

III. Edgar does not disclose calculating a brightness alteration

In response to Appellant's arguments that Edgar does not disclose "a calculation device for calculating a brightness alteration amount for correcting a defect portion in the image based on an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when light is irradiated onto the image recording material, and a difference in the refractive indexes of visible light and non-visible light in the image recording material" the Examiner asserts that Edgar, col. 12, lines 25-40 and col. 11, lines 20-25, discloses the claimed calculation device. In particular, the Examiner asserts that darkness is a major feature that is associated with each imperfection and a way to correct for unwanted darkness in an image is to offset it by using a brightness alteration amount.

The respective column and lines cited by the Examiner disclose performing interpolation and the appearance of imperfections as darkened areas. The darkened areas are used to create a map of imperfections to which fill-in algorithms are applied. However, there is no teaching or suggestion of brightness alteration in relation to a difference of refractive indices. In particular, if the darkened areas were altered to correct for brightness, that would appear to defeat the imperfection mapping desired in Edgar.

IV. Edgar does not disclose reducing high frequency components of a spatial frequency of a defect portion and an area adjacent to the defect portion

In response to Applicant's argument that Edgar does not disclose "wherein the plurality of types of correction methods comprises a vignetting method in which image information is corrected by reducing high frequency components of a spatial frequency of a defect portion and an area adjacent to the defect portion" as recited in claim 21, the Examiner asserts that Edgar, col. 10, lines 63-67, discloses a software boost to manipulate high special frequencies for renormalization to offset the removal of the high frequencies at the CCD sensor level.

However, the software boost of high spatial frequencies is not a correction method as initially cited by the Examiner. Moreover, there is no teaching or suggestion of reducing high frequency components of a spatial frequency of **a defect portion and an area adjacent to the defect portion**. The inclusion of a high spatial frequency boost would seem to teach the opposite of the high frequency reduction.

For at least the above reasons and those set forth in the Appeal Brief, claim 1 and its dependent claims should be deemed allowable. To the extent claims 13 and 18 recite similar elements, claims 13 and 18 and their dependent claims should be deemed allowable for at least the same reasons.

V. Hiramatsu does not teach or suggest calculating image feature amounts for defect portions along a plurality of different directions running from within each defect portion

In response to Appellant's argument that Hiramatsu does not disclose "calculating image feature amounts for defect portions in an image represented by electronic information along a plurality of different directions running from within each defect portion," the Examiner asserts that Hiramatsu, col. 29, lines 60-67 and col. 30, lines 1-42, discloses scanning in a mainline scanning direction which inherently includes left to right and right to left scanning and uses the correction method for a short defect and a long defect. Further, the Examiner asserts that Hiramatsu, col. 32, lines 5-10, discloses a sub-scanning processing which allows for directions perpendicular to the main line axis to allow for a two-dimensional scan for correcting defects.

However, col. 29, lines 60-68 and col. 30, lines 1-42 disclose a defect correction procedure. If the defect is short (two or less picture elements) then the defect is replaced with the picture element immediately before the defect. If the defect is long (3 or more picture elements) the first two picture elements of the defect are treated as short defects and are substituted with data from the picture element before the data. The defective data corresponding to the third or more picture element is regarded as a long defect and is replaced with preceding scan data.

Col. 32, lines 5-10 discloses effecting a subscan by driving a stage such that an image of an original projected on a line sensor moves in a direction perpendicular to a direction of a main scan performed by a line sensor, therefore making if possible to effect a two dimensional scan.

However, merely because a main scan and a subscan is performed, does not teach or suggest that image features are calculated in a plurality of different directions from within defect portions. Further, there is no teaching or suggestion that a final correction value is obtained based on amounts of image features of each direction calculated by the feature amount calculation device.

For at least the above reasons and those set forth in the Appeal Brief, claims 16 should be deemed allowable. To the extent claim 19 recites similar elements, claim 19 should be deemed allowable for at least the same reasons.

VI. Tung does not teach the claimed calculation device

On page 7 of the Examiner's Answer, summarizing the rejection of claim 12, the Examiner asserted that Edgar does not teach calculating a high frequency ratio, however, the Examiner asserts that it would be well known to one of ordinary skill in the art that this ratio could be used in order to see how much the light is being affected by defects, citing Tung in support.

However, as discussed above (see argument IV) Edgar does not disclose reducing high frequency components of a spatial frequency of a defect portion and Tung does not cure this deficiency.

Moreover, as previously submitted, Tung discloses an infrared-transmissive, visible-light-absorptive retro-reflector such as that used in retro-reflective signs, labels and coatings. See col. 1, lines 9-19. As opposed to the prior art, the retro-reflector disclosed in Tung reflects infrared radiation with good efficiency. The retro reflector includes a thin infrared-transmissive

visible light absorptive layer which comprises an infrared-transmissive film and solid discrete pigments particles. The pigment particles lead to a good transmission of infrared radiation while substantially absorbing visible light. The ratio of infrared radiation transmitted to the combined total of infrared radiation and visible light transmitted is at least 75% or more than 90%. See col. 1, lines 55-63.

However, Tung does not disclose "wherein the **calculation device** acquires the feature amount based on one of the type of image recording material and by **calculating a ratio of a value** obtained **when high frequency components are extracted from a change in the amount of transmitted or reflected non-visible light in an area adjacent to the defect portion** when non-visible light is irradiated onto the image recording material and **a value obtained when high frequency components are extracted from a change in an amount of transmitted or reflected visible light in an area adjacent to the defect portion** when visible light is irradiated onto the image recording material." In particular, Tung is not at all concerned with a defect portion.

Therefore, assuming Tung could be combined with Edgar, the combination fails to teach all of the claimed limitations. Moreover, it would not be obvious to one of skill in the art to combine the retro-reflector for signs of Tung with the film defect mapping system of Edgar.

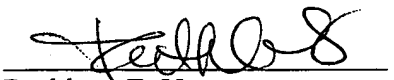
For at least the above reasons and those set forth in the Appeal Brief, claim 12 should be deemed allowable.

CONCLUSION

For the above reasons as well as the reasons set forth in Appeal Brief, Appellant respectfully requests that the Board reverse the Examiner's rejections of all claims on Appeal.

An early and favorable decision on the merits of this Appeal is respectfully requested.

Respectfully submitted,



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